

In the Claims

Please amend claims 2, 3, 15 and 20 as follows:

1. (Previously presented) Apparatus for oxygenating and pumping blood comprising:

a venous line;

an arterial line;

a gas removal system coupled to the venous line, the gas removal system comprising a housing having a gas collection plenum and a gas removal port and a filter element disposed within the housing;

a blood oxygenation element having a blood outlet coupled to the arterial line;

a pump coupled in fluid communication with the blood oxygenation element, the pump coupled directly to the gas removal system to induce a negative pressure in the gas removal system and the venous line;

a sensor disposed on the gas collection plenum to monitor a level of gas or blood in the gas collection plenum;

a suction line coupled to the gas removal port;

a valve operatively associated with the suction line;

a microprocessor-based controller coupled to the sensor to continuously monitor the level of gas or blood in the gas collection plenum, the controller programmed to selectively actuate the valve to remove gas accumulated in the gas collection plenum; and

a control panel coupled to the controller, the control panel configured to accept input commands that control operation of the gas removal system.

2. (Currently amended) The apparatus of claim 1 wherein the sensor ~~gas removal system~~ comprises an ultrasonic sensor.

3. (Currently amended) The apparatus of claim 1 wherein the sensor ~~gas removal system further~~ comprises a capacitive sensor element.

4. (Original) The apparatus of claim 1 wherein the blood oxygenation element comprises an annular fiber bundle.

5. (Previously presented) The apparatus of claim 1 wherein the gas removal system, blood oxygenation element and pump are coupled together in a fixed, predetermined arrangement.

6. (Previously presented) The apparatus of claim 1 further comprising at least a first pole-mounted support arm for supporting the gas removal system, the blood oxygenation element and the pump.

7. (Previously presented) The apparatus of claim 1 wherein the filter element comprises a first stage of a multi-stage blood filter.

8. (Previously presented) The apparatus of claim 6 further comprising at least a second pole-mounted support arm for supporting the control panel.

9. (Previously presented) The apparatus of claim 1 further comprising a recirculation line coupled between blood outlet and the gas removal system.

10. (Previously presented) The apparatus of claim 1 wherein the pump comprises an impeller that is magnetically coupled to a reusable drive unit.

11. (Previously presented) The apparatus of claim 1, further comprising a heat exchanger coupled between the venous line and the arterial line.

12. (Previously presented) Apparatus for oxygenating and pumping blood comprising:

- a venous line;
- an arterial line; and

- a blood circuit coupled between the venous line and the arterial line, the blood circuit comprising a gas removal system, a pump and an oxygenator coupled together in a fixed, predetermined arrangement, wherein the pump is coupled in fluid communication between the oxygenator and the gas removal system to induce a negative pressure in the gas removal system and the venous line; and

- wherein the gas removal system is coupled to the venous line and comprises:

- a housing having a gas collection plenum and a gas removal port,

- a sensor disposed on the housing to monitor a level of gas or blood in the gas collection plenum;

- a suction line coupled to the gas removal port;

- a valve operatively associated with the suction line;

- a microprocessor-based controller coupled to the sensor to continuously monitor the level of gas or blood in the gas collection plenum, the controller programmed to selectively actuate the valve to remove gas accumulated in the gas collection plenum; and

a control panel coupled to the controller, the control panel configured to accept input commands that control operation of the gas removal system.

13. (Previously presented) The apparatus of claim 12 wherein the sensor employs ultrasonic energy.

14. (Previously presented) The apparatus of claim 13 further comprising at least a first pole-mounted support arm for supporting the blood circuit.

15. (Currently amended) The apparatus of claim 14 ~~12~~ further comprises at least a second pole-mounted support arm for supporting the control panel.

16. (Previously presented) The apparatus of claim 12, wherein the gas removal system further comprises a filter element disposed within the housing.

17. (Previously presented) The apparatus of claim 16 wherein the filter element comprises a first stage of a multi-stage blood filter.

18. (Previously presented) The apparatus of claim 12 further comprising a recirculation line coupled between the oxygenator and the gas removal system.

19. (Previously presented) The apparatus of claim 16 wherein the pump comprises an impeller that is magnetically coupled to a reusable drive unit.

20.(Currently amended) The apparatus of claim 12 wherein the sensor comprises a capacitive sensor element.

21.(Previously presented) The apparatus of claim 12 further comprising a heat exchanger coupled between the venous line and the arterial line.

22.-34.(Canceled).